

ABSTRACT

A compact light weight printhead capable of direct quasi-contact printing includes an OLED–Color Filter structure deposited onto a substrate. The OLED–Color Filter structure includes an OLED structure emitting over a broad range of wavelengths and color filter arrays that selectively transmit radiation in different distinct ranges of wavelengths. The printhead is designed for contact or quasi-contact printing, without additional optical elements. The printhead design ensures that the desired pixel sharpness and reduced crosstalk is achieved. Two possible different arrangements for the printhead are disclosed. One arrangement includes at least one array of OLED elements and at least one color filter array. Each color filter array in this arrangement includes at least one triplet of color filters, and each element in each the triplet is capable of transmitting radiation in a distinct wavelength range different from the distinct wavelength range of the other two color filters in the same triplet. In the second arrangement, the printhead includes at least one triplet of arrays of individually addressable Organic Light Emitting Diode (OLED) elements and at least one triplet of arrays of color filter elements, each OLED array in the triplet being in effective light transmission relation to the light receiving surface of one color filter array in the triplet thereby constituting an OLED - Color filter array set. In this second arrangement, each color filter array in each triplet has elements that are capable of transmitting radiation in a distinct wavelength range different from the distinct wavelength range of the other two arrays in the triplet.